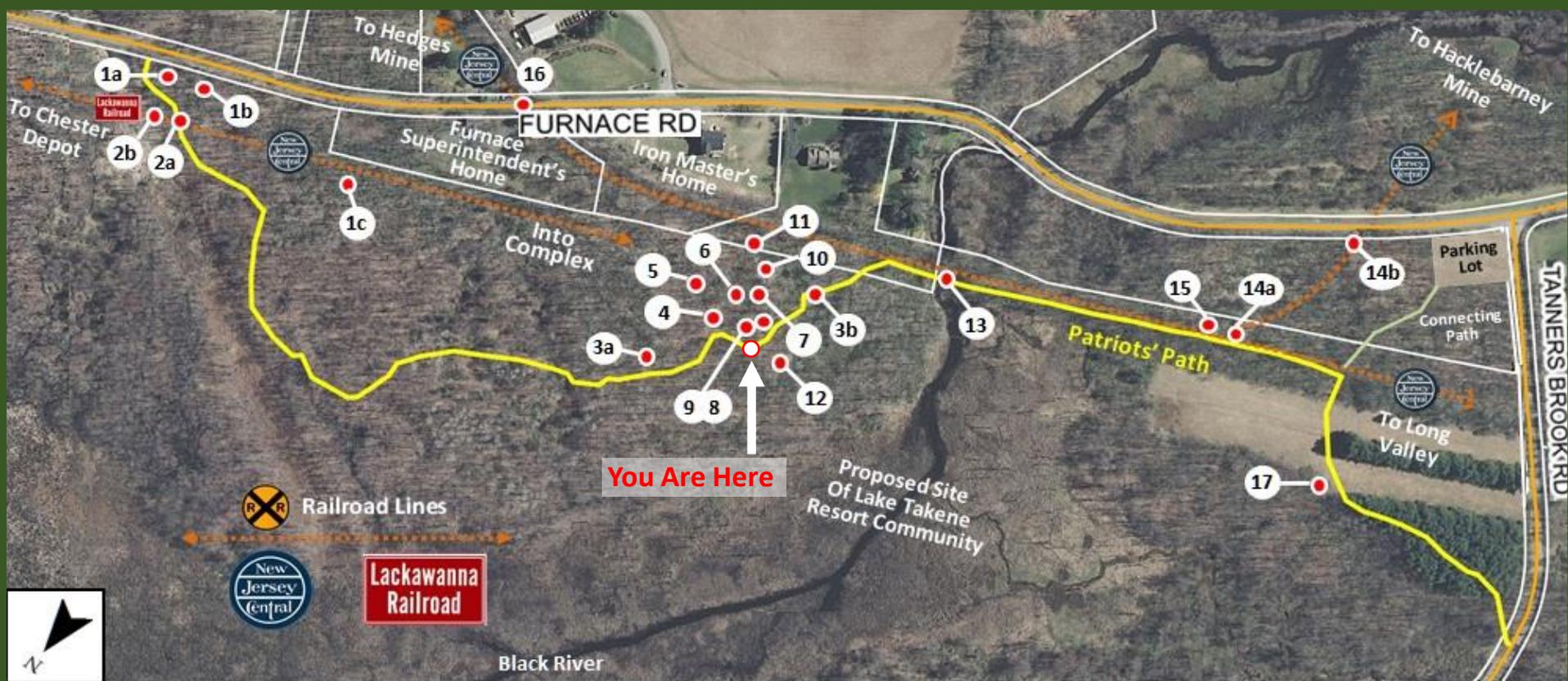


- |               |                |   |               |  |
|---------------|----------------|---|---------------|--|
| <b>Legend</b> | <b>1 a/b/c</b> | <b>Patch House Foundations</b>              | <b>9</b>      | <b>Foundation to Latrine</b>                   |
|               | <b>2 a/b</b>   | <b>Railway Track Bed to Chester Station</b> | <b>10</b>     | <b>Engine Mounts</b>                           |
|               | <b>3 a/b</b>   | <b>Long Slag Pile</b>                       | <b>11</b>     | <b>Loading Area</b>                            |
|               | <b>4</b>       | <b>Ore Roaster</b>                          | <b>12</b>     | <b>Limestone Pile</b>                          |
|               | <b>5</b>       | <b>Cistern</b>                              | <b>13</b>     | <b>CRRNJ Bridge Over Black River</b>           |
|               | <b>6</b>       | <b>Foundation to Casting House</b>          | <b>14 a/b</b> | <b>Railway Track Bed to Hacklebarney Mine</b>  |
|               | <b>7</b>       | <b>Furnace Stack</b>                        | <b>15</b>     | <b>Lake Takene Railroad Station Foundation</b> |
|               | <b>8</b>       | <b>Foundation to Ore Shed</b>               | <b>16</b>     | <b>CRRNJ Stone Bridge over Furnace Road</b>    |
|               |                |   | <b>17</b>     | <b>Civilian Conservation Corps Work Site</b>   |

**You Are Here**



- |               |   |  |
|---------------|---|--|
| <b>Legend</b> | <b>1 a/b/c</b> Patch House Foundations            | <b>9</b> Foundation to Latrine                       |
|               | <b>2 a/b</b> Railway Track Bed to Chester Station | <b>10</b> Engine Mounts                              |
|               | <b>3 a/b</b> Long Slag Pile                       | <b>11</b> Loading Area                               |
|               | <b>4</b> Ore Roaster                              | <b>12</b> Limestone Pile                             |
|               | <b>5</b> Cistern                                  | <b>13</b> CRRNJ Bridge Over Black River              |
|               | <b>6</b> Foundation to Casting House              | <b>14 a/b</b> Railway Track Bed to Hacklebarney Mine |
|               | <b>7</b> Furnace Stack                            | <b>15</b> Lake Takene Railroad Station Foundation    |
|               | <b>8</b> Foundation to Ore Shed                   | <b>16</b> CRRNJ Stone Bridge over Furnace Road       |
|               |   | <b>17</b> Civilian Conservation Corps Work Site      |



**Patriots' Path**



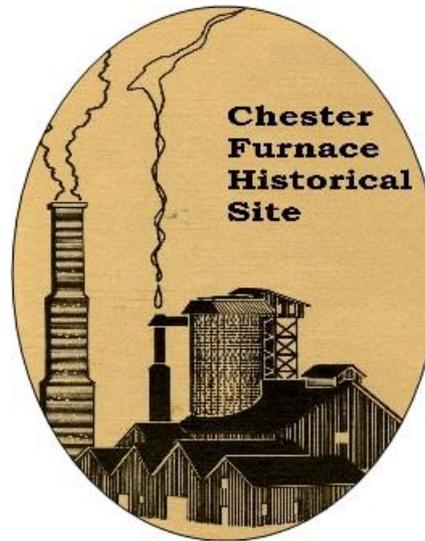
*enjoy the  
experience*

**morris county park commission**



**NEW JERSEY DIVISION OF  
Fish and Wildlife**

# You are entering the Chester Furnace Historical Site



**See the Kiosk at the main Furnace  
Site ahead or Furnace Road  
Trailhead for more information**



**Patriots' Path**

# Kiosk Map Locations #1a, 1b, 1c

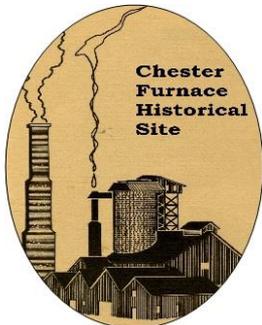
## Patch Houses



The more fortunate Furnace workers and their families were able to live in wood-framed houses near the Furnace or in town. Houses of this type were built in clusters or “patches”.

Patch houses were usually two-story, 12’ wide and 30’ long with a partition through the middle with one family on each side. Each house had a cellar, a parlor, a kitchen, and 2 or 3 bedrooms upstairs.

Today, only the stone foundations remain – one immediately in front of you (1a), another (1b) about 75 feet along the road to your left, and several (1c) set deeper in the woods, closer to the Furnace.



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path



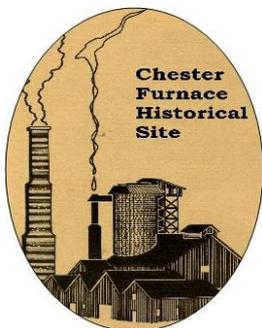
# Kiosk Map Location #2a

## Railway Track Bed



**Chester Railroad Station**

You are passing over the raised berm on which the tracks of the Delaware, Lackawanna & Western Railroad Company (DL&W) once lay. To your right, the tracks headed toward the Chester “Muskrat” Railroad Station at the intersection of Hillside Road and Oakdale Road, which remained in operation until the early 1930s. To your left, the tracks led directly to the Chester Furnace operation.



**See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information**



**Patriots' Path**



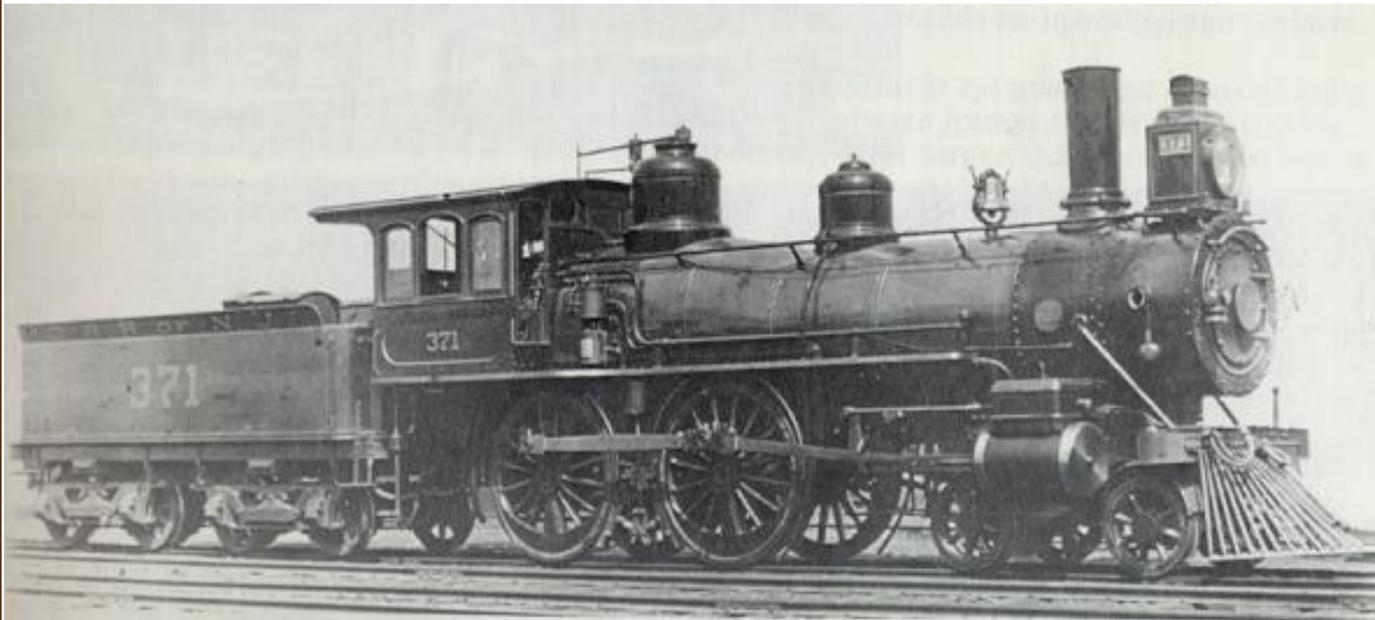
enjoy the  
experience

morris county park commission

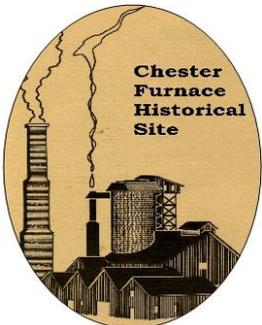
## Kiosk Map Location #2b



# Next Stop, Chester Station



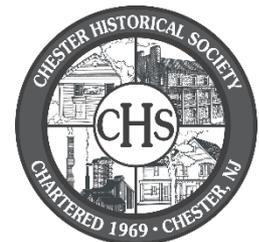
During the time of the Furnace operation, passengers heading to and from the Chester Station would have made the train trip powered by a Baldwin steam locomotive. The path of the train would have been directly where you are standing!



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path

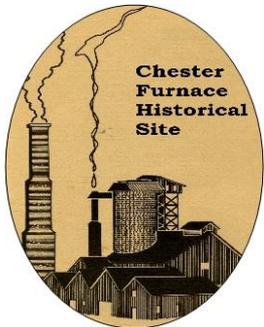


# Kiosk Map Locations #3a, 3b

## Slag Piles



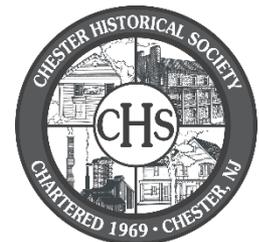
Slag is a waste by-product of pig iron production and consists of melted limestone and impurities that separate out when iron ore is melted in a blast furnace. Rather than incur the expense of transporting the slag away from the site, the operators of the Chester Furnace simply dumped their slag in long rows leading away from the Furnace. On your left, Patriots' Path runs along side of a long slag pile. Further up the trail, Patriot's Path will cross over another slag pile.



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



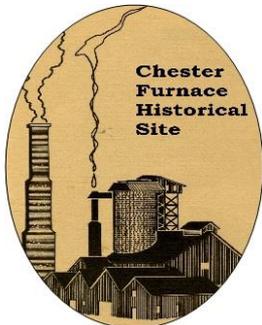
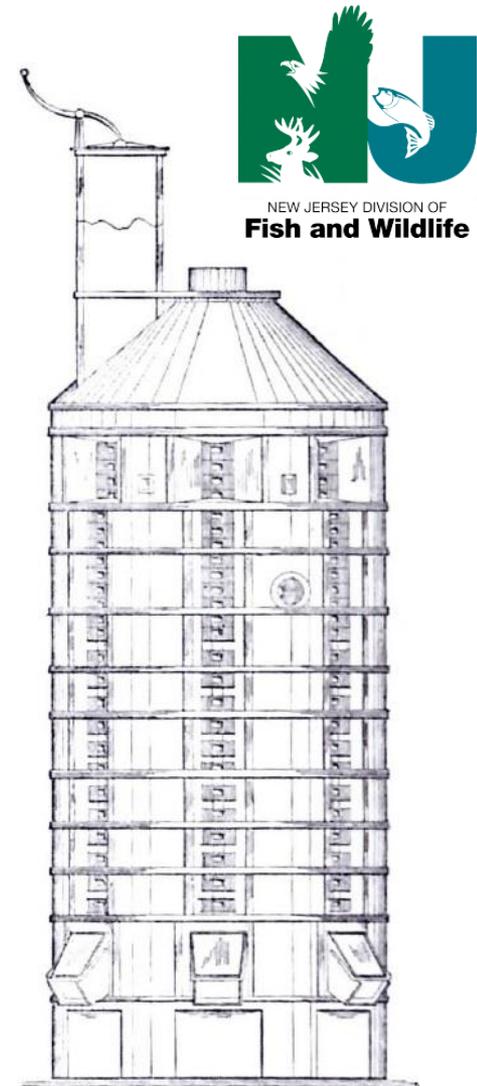
Patriots' Path



# Kiosk Map Location #4

## Ore Roaster

The raised area before you with the array of fire bricks is the site of the Furnace Ore Roaster. An ore roaster (also referred to as an ore oven or kiln) was used to remove impurities – particularly sulfur – from the iron ore prior to its introduction to the blast furnace. The roasting process first involved breaking up the ore into small pieces which were then loaded into the roaster. Each load of ore was then heated with 2.5 tons of anthracite fuel (a type of coal with a high carbon content) to around 1,100 degrees Fahrenheit to oxidize the ore and drive the sulfur out in the form of a gas. The Chester Furnace Ore Roaster had a 14' outside diameter, was 36' high, and operated with 3-4 men roasting 50 tons of ore per day.



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path

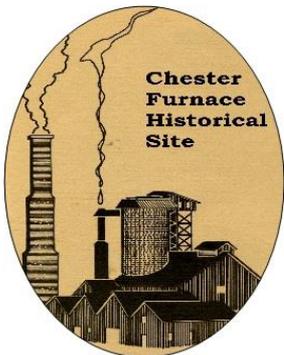


# Kiosk Map Location #5

## Cistern



The operation of the Chester Furnace relied on a number of powerful steam engines to perform critical tasks. Key among these tasks was supplying a steady stream of high-pressure air to accelerate the fiery ‘blast’ of the Furnace, powering the machinery that crushed the iron ore prior to being introduced into the Furnace, and pumping water from the adjacent Black River into the Cistern. 10-foot deep and lined with waterproof cement, the Cistern acted as a reservoir to deliver a ready supply of water through iron pipes and rubber hoses to the steam engines, as well as to the blast furnace to provide needed cooling functions.



See the Kiosk at the main Furnace Site ahead or the Furnace Road Trailhead for more information



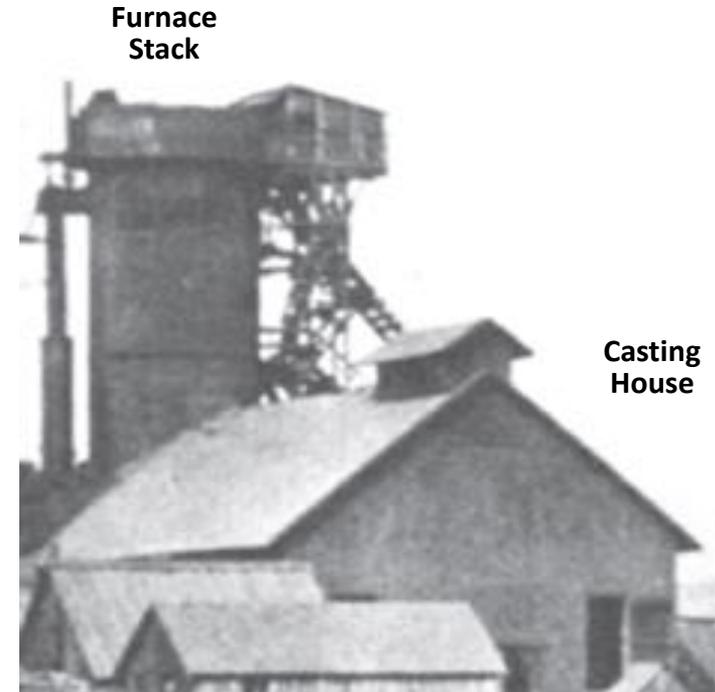
Patriots' Path



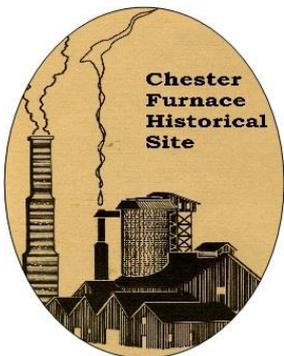
# Kiosk Map Location #7

## Furnace Stack

The remaining stone base for furnace stack is up the hill about 40 feet to your right. The Chester Furnace began operation in 1878 and was producing 300 tons of pig iron per week by 1880. With its prominent 60' tall sheet metal furnace stack, the operation utilized state of the art technology. Once started, the blast furnace remained in operation 24 hours a day, seven days a week at 775 degrees F. and produced liquefied iron that was poured into sand-shaped forms that produced bars referred to as 'pigs'.



Pigs



See the Kiosk at the main Furnace Site ahead or the Furnace Road Trailhead for more information



Patriots' Path

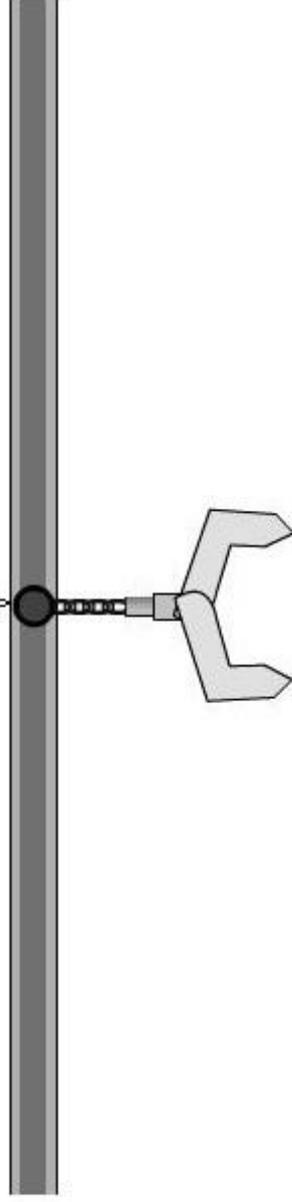


# How an iron blast furnace works

Iron ore from Chester mines were roasted to remove sulfur impurities in a W.F. Taylor patented process.

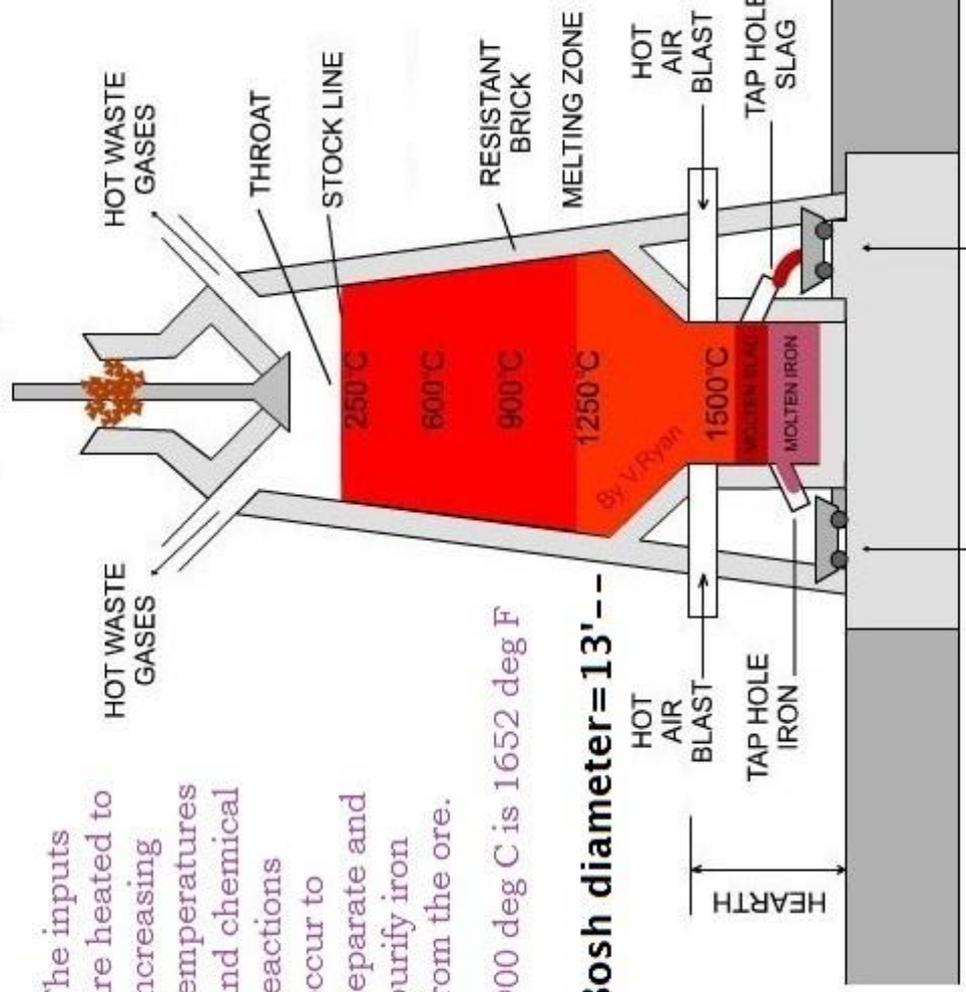
Roasted Iron Ore  
+ Anthracite Coal  
+ Limestone

Coal and limestone help convert iron compounds in the ore to iron metal.



The inputs are heated to increasing temperatures and chemical reactions occur to separate and purify iron from the ore.

900 deg C is 1652 deg F



Slag is formed from the ore impurities and limestone and is lighter and floats above the molten iron.

**Bosh diameter = 13' --**

Molten iron was cast into 80lb bars.

IRON LADLE

SLAG LADLE

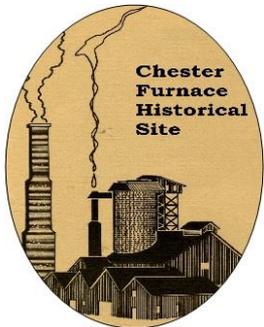
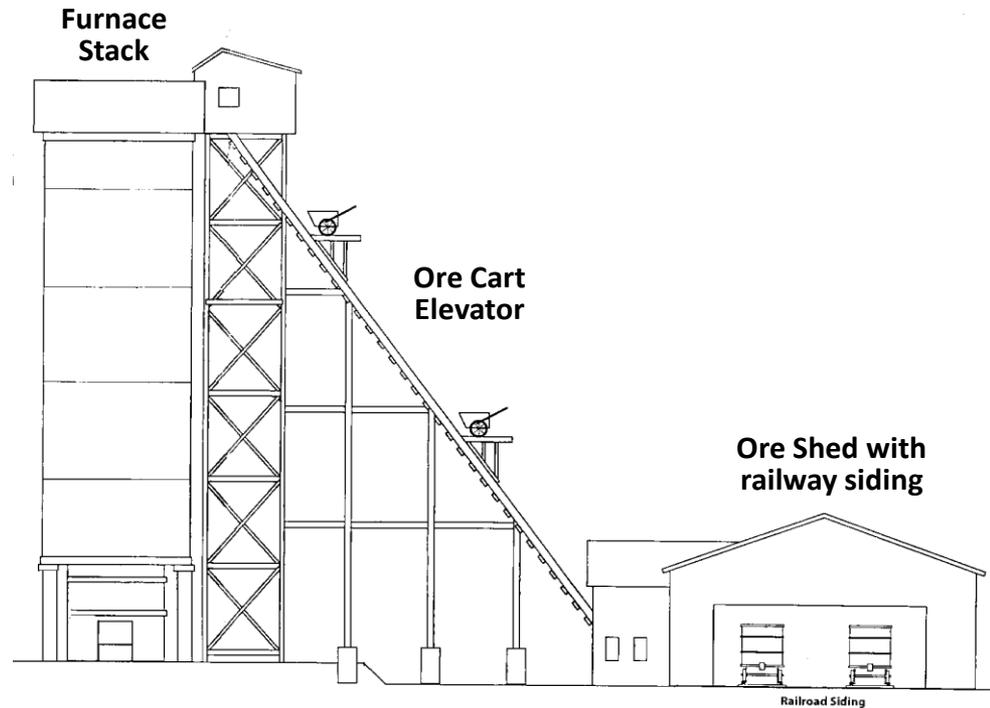
Slag was carted to form the slag piles

# Kiosk Map Locations #8, 9

## Ore Shed and Latrine Foundations

To your left is the foundation of the Furnace Ore Shed. In order to ensure a constant feed of ore for the furnace, the output of the roaster was stored into the Ore Shed and then moved by mechanical elevator to the top of the furnace stack.

To your right is the stonework base of a latrine pit, which was provided to address the calls of nature for the site workforce (which numbered 100 men at the peak of operation).



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path

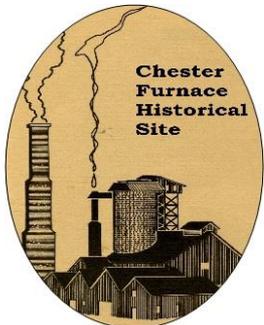


# Kiosk Map Location #12

## Limestone Pile



Directly in front of you is a large pile of raw limestone that was abandoned after the operation of the Furnace ended in 1891. For most of its 10-year operation, the Chester Furnace produced pig iron, which requires iron ore and limestone as essential ingredients. Production of a ton of pig iron required 2 tons of ore and nearly a ton (0.91) of limestone, with limestone playing a critical role in helping to separate out impurities such as sulfur from the molten iron ore.



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



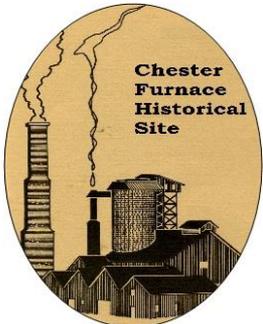
Patriots' Path



# Kiosk Map Location #13 CRRNJ Bridge, Lake Takene Dam

You standing on the former *Central Railroad of NJ (CRRNJ)* fieldstone bridge over the Black River, which was built in 1872. In 1919, a predecessor to JCP&L, the *Central Jersey Power Company*, purchased much of the vista in front of you to construct the *Lake Chester Park* resort for its employees.

They quickly sold a number of half-acre lots, and set about creating a lake (dubbed Lake Takene) using the sluice gate dam that you can see in the foreground. Unfortunately, their surveying proved faulty, and the project was abandoned when the rising waters cut off the major north-south roadway in Chester (prior to Route 206).



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Remains of the Lake Takene Dam



Typical sluice gate

# Kiosk Map Locations #14a and 15

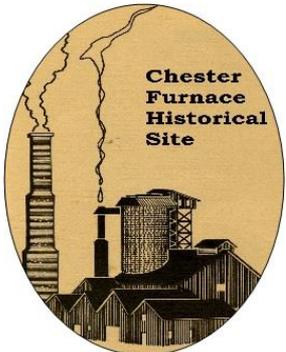
## Train Station, Mine Railway

You are standing in front of the two support footings for the *Lake Chester Park Train Station* (which overhung the embankment). The station was constructed around 1919 to handle vacationers to the ill-fated Lake Takene resort community.

To your immediate right you can see the remains of a raised railroad grade angling off the main Central Railroad of New Jersey rail line into the woods. This spur was put in service in 1873 to bring iron ore to the Furnace from the Hacklebarney Mine.



Likely appearance of Lake Chester Park Train Station



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path



enjoy the  
experience

morris county park commission

# Kiosk Map Location #14b Mine Railway



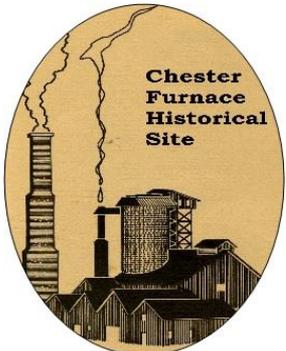
You are standing directly on the path of the Central Railroad of New Jersey rail line leading to the Hacklebarney Mine.

Following the decommissioning of the Chester Furnace in 1891, this rail line saw diminishing use with the ties and rails ultimately being removed in 1903.

Note the difference between the lower height of the original rail bed compared with the considerably higher modern-day Furnace Road.



Hacklebarney Mine



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path

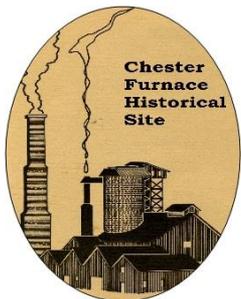


# Kiosk Map Location #16 CRRNJ Stone Bridge

You are standing by the remaining abutment of the CRRNJ (Central Railroad of New Jersey) bridge for the *Chester Hill Branch*, which was constructed in 1873 – largely by Italian laborers – and decommissioned in 1962, with the abutment on the northern side of Furnace Road subsequently removed to increase the usable road width.

The path of this rail line ran up the hill, past the now-flooded remains of Hedges Mine (which measured 300' long and 50' deep during its operation), and on to a small railway yard with station and locomotive engine house (where the RiteAid Pharmacy is now located).

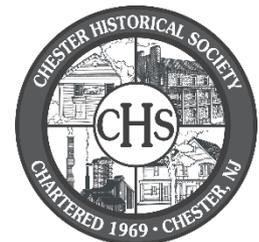
In 1881 an extension of the line was built, just north and parallel to Main Street, to service the Cooper, Kean, and Squires mines, near Williamson and Linabury Lanes off of North Road.



See the Kiosk at the main  
Furnace Site or Furnace Road  
Trailhead for more information



Patriots' Path



# Kiosk Map Location #17 Reforestation Project



You are entering a large stand of Eastern White Pine trees that were planted during the Great Depression by the Civilian Conservation Corps (CCC). Established in 1933, the CCC was one of the programs in President Franklin Roosevelt's 'New Deal' and was designed to provide conservation-oriented work for the unemployed. Most of the CCC participants were young men between the ages of 18 and 25 who were awarded room, board and medical care in addition to earning \$30 a month -- \$5.00 of which they could keep, with the remaining \$25 being sent home to their families.



The CCC program ended in 1942 with the advent of World War 2. Throughout its 9 years of operation, the local chapter in New Jersey engaged over 1,000 men and was responsible for establishing multiple parks, including Hacklebarney State Park, High Point State Park, Jenny Jump State Forest, Stephens State Park and Voorhees State Park.



Patriots' Path

